INDEX TO VOLUME VI.

Editorials.

A
Accidents in Mines..... 168
After Grant, What?..... 297
All is not Gold that Glitters..... 72
American Institute Lectures.... 329
Amount of Heat Produced by Combustion..... 184
Amateur Geology..... 392
American Mining Enterprise in South America..... 72
Another Mining Engineer for Colorado..... 88
Ancient Mining in Siberia and Europe..... 392
Another Lamp..... 41
Another Inter-continental Telegraph..... 56
Application of the Theory of Specific Heat to the Determination of High Temperatures.. 344
A Few Words about the Journal of Mining..... 406
A New Use for Mica..... 406
A Rare Opportunity..... 406

B
Beecher a Regular Contributor to The Manufacturer and Builder 393
Bills Due..... 152

C
Calculation of the Units of Power Produced by the Conversion of Water into Steam..... 248
Cheap Reduction of Ores in Nevada..... 184
Chemical Laboratories..... 280
Colorado Copper..... 72
Collieries vs. Graveyards..... 105
Colorado Iron..... 216
Commissioner Wilson, the Report of..... 280
Commissioner Wilson Again..... 296
Commissioner Taylor's Report.40, 88, 200
Common Sense in Canada..... 360
Consumption of Coal..... 313
Comparative Amounts of Heat Produced by Combustion of Coal and Petroleum..... 200
Copper Matt for Swansea..... 56
Cornish Copper Trade..... 297

D
Determination of the Relation between the Units of Heat and of Power..... 312
Determination of the Age of Ore-Veins..... 184
Diamond Making..... 24
Discovery of Sodium-Amalgamation..... 344
Do Fissure Veins Grow Wider in Depth?..... 345
Dussauce..... 329

E
English Capital in Colorado..... 40
Errata..... 121, 185, 217, 329

F
Formation of Quartz Crystals in Idaho..... 329
Future of American Mining—Its Demands..... 104

G
Gems, Real and Artificial..... 184
Gold in Asia and Africa..... 297
Gold in Dutchess County..... 360
Gold in Transylvania..... 280
Great Improvement..... 217

H
Highest and Deepest Mine.24, 104, 201
Hue and Cry..... 24

I
International Coinage..... 233
Iron vs. Ships' Compasses..... 88
Iron Manufacture in Lake Superior..... 200

L
Labor vs. Capital—the Coal Miners' Strike..... 41
Lafayette College..... 72, 120
Last Wonder of the Spectroscope 345
Latent Heat of Liquids..... 152
Latent Heat of Vapors..... 168
Lectures..... 392
Lignite of Wyoming, The..... 249
Longest Subscription Yet..... 217
Lowest Mine, The..... 104

M
Manufacturer and Builder, The.. 312, 361, 392
Mining Codes..... 328
Mining and Metallurgy at Lafayette College..... 232
Mining Law, the..... 8
Mining, Relation of to Other Industrial Pursuits..... 24
Mines of the Persians and Egyptians..... 376
Mining in the Earliest Times.... 360
Mirage..... 232
Montana Ores on their Way to Europe..... 136
Mont Cenis Tunnel, the..... 376
Multum in Parvo..... 297

N
Napoleon's Agents..... 312
Nevada, General Features..... 8
Nevada, Loss in Reduction of Ores of..... 8
New Tariff on Copper, The..... 376
New Explanation of the Earth's Central Heat..... 72
Nitro-Glycerine in a New Place.. 329
Nitrate of Ethyl—A New Anæsthetic..... 345
Notes on Iron Puddling..... 168
Nova Scotia and Her Gold..... 136

O
Oily Gammon..... 120
Old and New in Mining..... 120
Ore-concentration without Water..... 216

P
Pacific Railroad, The..... 248
Pacific Railroads—How are they Constructed?..... 264
Paint Manufacture in Detroit.... 137
Peat for Smelting..... 200
Petroleum in Europe..... 264
Poetry and Mining..... 297

R
Railway Management..... 232
Relation between Unit of Heat and Unit of Power..... 232
Rock-Salt in France..... 56
Ross Browne's Report on.....8, 24

S
Santo Domingo..... 328
School of Mines—the Name..... 360
Ship Canal, A..... 217
Smelting of Copper Ores in Canada..... 216
Some Practical Facts in Regard to Steam Engines..... 280
Songs of Miners..... 152
Southern Gold Field, the..... 249
Strike and Dip of Mineral Veins, as Influencing their Richness 136
Sutro Tunnel.....8, 104
Sutro Tunnel and New York Tribune..... 24
Separation of Zinc Blende and Galena..... 406

T
Taxation of Mines, a Source of Ruin rather than Revenue.. 104
Telegraphing by Numerals..... 249
Temperature of the Earth's Crust 88
Through Canada to the Pacific... 24
Timber Supports in Mines..... 216
Tin in Colorado, Reported Discovery of..... 152
Twin River Company, The..... 264
Tunnels in Colorado..... 137

U
Unit of Heat, The..... 72
United States Pacific Railroad Bonds..... 296

V
Vein Formation, Observations on 216
Volume Five, The End of..... 9

W
White Pine..... 392
Wilson's Steam Stamp-Mill..... 329
Witherite, or Carbonate of Baryta 40
Workingmen's Benevolent Associations..... 296

Z
Zinc Manufacture in Missouri.... 56
Zinc with Quicksilver in Amalgamation..... 120

Editorial Correspondence.

Heavy Blasting—Dynamid..... 9
Peculiarities of San Francisco.... 25
San Jose—New Almaden—The Quicksilver Business..... 41
Las Mariposas..... 56
Giant Powder in Actual Use—Working Results..... 73
Yosemite..... 89
The Mother Lode of California.. 105
The Eureka Mine in Amador Co. 121
A Trip to Lake Bigler, with Wayside Notes..... 137
The Deep Placers of Nevada Co.. 152
The Valleys of Eastern Nevada.. 169

Scientific Meetings.

AMERICAN INSTITUTE, POLYTECHNIC BRANCH.
Water Meters, Study of History, Advice to Patentees, Chair Springs, A New Lamp-top, Condenser Tubes, House Heating Furnaces..... 218
Elevators, Safety Windlass, The Susquehanna Bridge, Screw Clamp, Meteorites..... 234
Artificial Teeth, Testing Steam Engines..... 261
Piano Key-board, Combination Screw-driver, The Oak and its Products, Nitro Glycerine.... 281
Testing Steam Engines..... 297
Improved Railroad, Gold Fields of South America..... 314
Earthquakes..... 330
New Motive Apparatus, Mode of Ventilation, Steam Indicator 378
Improved Lamp, Hardening Steel, Propulsion of Vessels, Cost of Railway Traffic, Improved Car Wheels..... 394
NEW YORK SOCIETY OF PRACTICAL ENGINEERING.
Wood Pavements, Preservation of Wood..... 89
Water Meters..... 122
Cleaning and Disinfecting streets. 154
Elevated Railways for city travel. 186
Filtration of Water..... 218
Atmospheric Propulsion..... 245
Sewers and Sewerage..... 281
Railway Accidents..... 314
Arion Piano Forte, Propelling Apparatus, Elevators..... 341
Mining Engineering..... 378
LECTURES BEFORE THE AMERICAN INSTITUTE.
The Microscope and its Revelations..... 341
The Telescope..... 378
The Barometer..... 394
Philosophy of the Tea Kettle.... 394
American Association for the Advancement of Science. 89, 196, 122, 138, 155, 186, 202
National Academy of Sciences... 154
The Primeval Flora..... 407
LYCEUM OF NATURAL HISTORY.
Iron Manufactured from the Titaniferous Iron Sands of Canada, Good Iron from Pyrites. 281

New Publications.

American Journal of Science and Arts.....
American Exchange and Review. 9
Aniline and its Derivatives..... 265
Appleton's Railway Guide..... 377
Ashcroft's Railway Directory.... 78
Boundary Maps and Surveys.... 233
Commissioner Taylor's Report.. 25
Crooke's Kerl's Metallurgy..... 313
Dana's Mineralogy..... 201
Dawson's Arcadian Geology..... 57
Franklin Institute Journal.....25, 89
Galaxy, the..... 377
Gaslight Journal..... 313
Greeley's Recollections of a Busy Life..... 365
Hopton's Conversation on Mines. 217
Industrial American..... 361
Laudrin's Treatise on Steel..... 217
Mechanics' Tool-book..... 41
Mining Rights in Canada..... 153
Natural Wealth of California.... 89
Northwest Boundary..... 89
Old Roman World, the..... 73
Plymouth Pulpit..... 377
Report on the Purification of Gas 377
Spanish and English Dictionary. 233
Sutro Tunnel..... 9
System of Blowpipe Instruction. 41
The Boston Machinist..... 249
The Week..... 169
The Art of Saw-filing..... 249
Through-traffic Railway..... 361
Trotting Horse of America..... 313
White Pine Mill and Mining Co.. 377

Original Papers.

Amalgam of Copper..... 105
Ammonoosac Gold Field in New Hampshire..... 169
Chemical Effect of Steam on Metallic Sulphides at a High Temperature....169, 185, 201, 217
Conversion of Iron into Steel.... 91
Cryolite and Its Uses..... 137
Locomotives for Mines..... 153
Mineral Resources of the Isthmus of Panama.....377, 393, 407
Monograph on Iron.....25, 58, 74
Notes on Lower California..10, 26, 42
Paris and Freiburg Mining Schools.....57, 74, 90, 105
Plumbago..... 345
Prussian Royal School of Mines at Berlin..... 361
Report of Explorations in the Gold Fields of Virginia and North Carolina..361, 377, 393, 407
Report of Hon. J. Ross Snowden Upon the Mineral Resources of Colorado.....265, 281, 297, 313
Roasting of Metallic Sulphides or Sulphuretted Ores.....233, 249
Smoke of Smelting Works..... 90
Suspected Unknown Element in Laurentian Magnetites..... 138
Tungsten and Iron..... 121

Practical Letters.

Lessons in Mechanical Drawing 2, 18, 50, 66, 82, 98, 114, 211, 226, 242, 258, 274, 290, 306, 322, 339, 354, 370
On the Ventilation of Coal Mines 50, 66, 82, 98, 114, 130, 146, 162, 178, 194, 211, 226, 242, 258, 274, 290, 306, 322, 338
The Hoosac Tunnel..... 210

Correspondence.

A
Alaska Coal, Analysis of..... 297
A Miner Gets Excited About Commissioner Wilson..... 393

C
Carbonate of Baryta..... 57
Copper Glance from Texas 185

D
Dry Ore Concentrator, Krom's.. 250

F
Franklin Engine, the..... 356

G
Goshoot Lake..... 250

H
Hydraulic Limestone and Phosphate of Lime..... 57

I
Iron Manufacturers, to..... 393

M
Mica in Virginia..... 330
Mica, Plumbago, etc., in Virginia. 356

P
Plumbago 407

R
Railroad Companies, Western, Liberality of..... 121
Railroad, Pacific..... 281
Rocky Mountains, from the..170, 185, 201, 217, 223

Manufacturing and Mechanical Notes.

A
Another Velocipede..... 404
American Vapor Stove, the..... 245
Application of Paper, Novel..... 203
Arctic Lamp, the..... 282

B
Blind Fastening, Dearborn's..... 181
Boxwood and Ivory Rules, Levels, etc..... 309
Braiding Machine Works, the Rhode Island..... 123
Brooklyn Machine Shops, Items from 282

C
Copper, the Production of..... 357
Crimping Machines, Mays & Bliss' Drop and..... 229

D
Dies and Presses, Manufacturers of 309

E
Electric Fuse, Bishop's Improved. 139

F
File Company, the Nicholson.... 122
First Class Microscope, a..... 229

H
Hartford Steam-boiler Inspection. 203
Hermetic Method of Preserving Wooden Piles and Posts..... 165
Hoisting Machines, Brooks & Bacon's 280

I
Impermeable Cement..... 229
Improved Foot-Mortising Machine, Seymour & Whitlock's. 229
Improved Planing, Tongueing & Grooving Machine..... 309
Improved Tools, Lindsay, Walton & Co.'s..... 218
Index Milling Machine, Pond's... 139
Iron and Steel, on the Determination of Silicate, Graphite and Manganese, in..... 389

L
Lock Stand for Umbrellas..... 181
Locomotive Works, the Rhode Island..... 202

M
Meerschaum Pipes..... 181

N
New Sub-Marine Rock-Drill..... 404
Natural Lubricating Oils..... 165

P
Photography in Boston..... 181
Providence, Manufacturing Items from 165

S
Sewing Machines 107
Sewing Machines, Silent..... 10
Sheet Metal Gauge..... 123
Signs and Wonders..... 10
Skates 357
Steam Boiler Explosions and Examinations..... 282
Steam Pumps, James Clayton's.. 107
Steam Stamp-Mill, Wilson's.... 309
Stereotyping, the Clay Process of 357

T
Thallium, Preparation of from the Liquors of the White Vitriol Works and Lead Mines at the Lower Hartz..... 107
Type Making..... 11

V
Velocipedes..... 389
Ventilation 165

W
Water Meters..... 189

Miscellany.

A
A Compound for Separating Manurial Matter from Sewage Water..... 261
Agricultural Engineering..... 322
American Cast Steel, Superiority of 33
A New Explosive 354
Another New Gunpowder..... 370
Another New Powder..... 197
Another Warning..... 65
Arsenic in Subnitrate of Bismuth. 18
A Stone Bowl full of Gold..... 7

B
Bessemer Steel Scrap, Utilization of..... 18
Blast Furnace Improvements.. 137
Blast Furnaces, Size of..... 113
Blasting by Water 226
Bottom-Cast Steel Ingots..... 65
Breaking Iron, Simple Way of.. 2
Brigham Young and the Mining Interest 114
British Minerals, Statistics of... 389
British Mines..... 28
Building Materials, Preservation of 26
Bullion Product, Quarterly Statement of..... 354

C
California Academy of Science, Mr. Raymond's Address before 9
California Kaolin..... 49
Canadian Corner in Oil, the.... 298
Carbon in Steel..... 293
Cements for Chemists..... 66
Charcoal Crucibles..... 213
Chlorination Process of Mining, the 26
Coal Cutting by Machinery.... 209
Coal in Russia..... 49
Coal Trade of Pittsburg, the.... 82
Coal, Utilization of..... 23
Commissioner Snowden's Report, the Press on..... 353
Compressed Air, Propelling Cars by 82
Co-operative Colliery 213
Copper Mining on the Rhine.... 145
Covering Iron and Steel with Copper without a Battery, Process for..... 58
Cutting Glass by Hot Air..... 33

D
Detection of Atmospheric Air in Coal Gas, the..... 386
Durameter, the 341
Dynamite, Experiments with by its Inventor..... 49
Dynamite, More About..... 75

E
Earthquake Waves on the Pacific 33
Earthquakes..... 197
Effect of Lightning on Metals.. 353
Elasticity of Gold, the..... 17
Endless Wire Ropes for Collieries 71

F
Facing of Pits and Galleries, the. 241
Famous Artesian Well in Missouri, the..... 133
Fire Damp on Ship-board, Fatal Explosion of..... 389
Fire-Proof Flooring..... 234
Furnace for Burning Coal Dust, New Form of..... 97

G
Geologists, an Item for..... 81
Geological Cabinet, United States 213
German Gold and Silver Mines, yield of..... 129
Gold in France..... 213
Gold Nugget, Formation of..... 161
Granite, Important Discovery in. 178
Great Britain, Coal and Iron Statistics of..... 250
Great Shoshone Falls of Idaho, the 107
Gun Cotton for Blasting Purposes 401

H
Heat, Curious Effects of..... 129
Heaton's New Steel Process.... 370
Highway Robbery in Mexico.... 133
Hissometer, the..... 261
How to Save Quicksilver..... 17

I
Iowa Coal and Peat..... 370
Iron Interest 76
Iron Ore for 1866, Production of. 234
Iron Ores, Purification of 386
Italian Marble and Alabaster.... 130

K
Krupp Cannon, Improvement in. 275

L
Letter-Copying Press, R. Hoe & Co.'s 209

M
Magnesian Crucibles..... 306
Manufacture of Sulphuric Acid, New Process for 18
Manufacture of Zinc, Improvement in..... 261
Metallic Bismuth 129
Microscopic Examination of the Atmosphere 229
Minargent..... 26
Mining Claims, Pre-emption of... 59
Mining Galleries, Gate for..... 114
Mining Methods, Sensible Ideas on 2
Mining Powders..... 226
Mining Titles..... 298
Montana Statistics..... 234
Mint and Mining Statistics..... 404

N
Natural Growth..... 245
Natural Wells in Slate Qurries.. 259
New Atlantic Cable, a..... 65
New Boring Machine..... 39
New California Production..... 145
New Haupt Rock Drill, the..... 250
New Mines..... 145
New Motive Power, a..... 97
New Process of Manufacturing Steel 323
New Sub-Marine Telegraph Cable between France and the United States, the 133
New Suspension Bridge at Niagara Falls..... 391
Nitro-Glycerine at the Hoosac Tunnel 114

O
Oregon, New Copper Mines in... 49

P
Pacific Coast, Lead Smelting on. 210
Pacific Railway, an Asiatic Rival of..... 81
Pennsylvania Slate, Something About..... 178
Petrifaction, Extraordinary 357
Petroleum, Application of to Heating Boilers..... 226
Petroleum Trade, the..... 193
Preventing Accidents in Mines.. 213
Producing Cast Steel, Martin's Method of..... 98
Phosphate of Lime in North Germany..... 133

Q
Quicksilver, Statistics of..... 162
Quincy Granite Quarries, the.... 369

R
Rats on the Lower Levels, the 39
Reading Electricity..... 114
Remarkable Ærolite in Tennessee, the..... 137
Richardson System of Puddling, the 229
Russian Mining Commission, the 354

S
Safety Explosives..... 241
Saltpetre Trade, Change in the Current of..... 353
Salt Mines of Cracow, the..... 321
Scientific Associations, Beneficial Influence of..... 250
Siemen's Regenerative Gas Furnace, Adoption of at Pittsb'g. 338
Slate House, a..... 242
Solar Engine, the..... 290
Solid Lever Bridge..... 209
Soda Water, a Lake of..... 75
Squaring the Circle..... 354
Standard Yard, the..... 357
Steam on Canals.....81, 370
Subterranean Temperature..... 274
Sun-spots 25
Sutro Tunnel..... 385
Survey in Mexico 370
Singular Preservation 389
Structure of Metals..... 407

T
Telegraphs, Statistics of..... 394
Testing Steam Boilers..... 26
The First Gold Mining in California..... 18
The Flying Man..... 7
The Largest Day's Work..... 357
The Last Half Century..... 130
The New Road Steamer..... 266
The Rosario Mine..... 357
The Velocipede Substituted for Horses..... 293
Tin in Olden Times..... 777
Tin, Uses of..... 234
Treatment of Horn..... 370
Treating Copper Ore..... 370

U
Unprecedented Run..... 314
Use of Carbonic Oxyd in Furnaces, the..... 322

V
Velocipede Mania, the..... 209
Vermont Marble..... 225
Very Profitable Mines in California 26

W
Welsh Mining Districts, Children's Labor in..... 193
Wide Streets, Necessity for..... 26
Wilson Furnace, the..... 65
Wire Rope..... 386
Working Poor Copper Ores, New Process for..... 133
Wrought Iron Blooms direct from the Ore..... 194

Mining Summary—Gold and Silver.

A
Africa.....196, 277, 292, 324
Alaska..... 52, 164
Arizona 18, 21, 52, 182, 148, 163, 196, 260, 276, 291, 307, 324, 388
Arkansas.....
Asia 292
Australia..... 53, 116, 132, 324

B
British Columbia.. 84, 132, 195, 388

C
California....4, 21, 51, 69, 84, 101, 115, 131, 178, 195, 227, 243, 339, 387
Canada.... , 69, 116, 148, 180, 227, 260, 276, 355, 388
China..... 306
Colorado..20, 52, 68, 83, 100, 130, 147, 180, 194, 212, 228, 243, 259, 275, 277, 291, 307, 324, 354, 372, 387

D
Dakota.....21, 74, 80, 260, 291

G
Georgia.....5, 53, 116

I
Idaho..2, 52, 69, 101, 116, 132, 147, 168, 190, 212, 228, 244, 276, 324, 355, 388
Illinois .....

L
Lower California..... 243

M
Maine 164
Maryland..... 58
Mexico.....182, 260, 277, 340, 356, 388
Minnesota.....85, 116, 146, 180
Mississippi..... 84
Montana.....30, 50, 52, 68, 84, 99, 114, 147, 163, 180, 227, 244, 260, 276, 323, 340, 355, 388

N
Nevada.....4, 20, 83, 99, 116, 131, 148, 163, 179, 195, 228, 244, 259, 277, 291, 323, 339, 355, 373, 386
New Brunswick.....
New Jersey..... 132
New Mexico....163, 260, 277, 307, 388
New York..... 370
New Zealand..... 324
Nicaragua .....
North Carolina.....324, 372
Norway and Russia..... 292
Nova Scotia.....227, 277, 389

O
Ohio..... 180
Oregon....20, 52, 69, 84, 116, 132, 180, 260, 291

P
Pacific Coast Mining Review..... 67

Q
Queensland 116

S
Saint Domingo.....292, 308
Siberia.....
South Carolina..... 244

U
United States East of the Rocky Mountains 34, 35, 36, 37, 38
Utah.....19, 164, 265, 340, 355

V
Vancouver's Island..... 292
Vermont.....291, 308
Victoria..... 340
Virginia 260

W
Wales 181
Washington.....19, 180
West Virginia.....

Copper.

Arizona..... 181
California.....116, 148, 181, 245, 298, 325
England 308
Michigan...5, 21, 53, 85, 101, 117, 148, 164, 181, 196, 228, 244, 260, 277, 324
Nevada 196
New Hampshire..... 164
Texas..... 325
Vermont..... 164

Coal.

California..... 308
Colorado.....21, 308
England 389
Ohio..... 101
Pennsylvania.....53, 69, 102, 218

Iron.

Canada 340
Illinois.....132, 260
Indiana 85
Michigan...117, 181, 196, 261, 325, 356
Missouri 69, 218
New Jersey..... 132
New York.....5, 85, 212, 298
New Mexico..... 261
Pennsylvania.....132, 245, 325
Wisconsin 325

Lead.

Missouri 85, 228
New Hampshire..... 325

Oil.

Australia 58
Austria..... 261
Pennsylvania.....21, 53, 69, 85, 341
Sweden 69
Wisconsin 341

Slate.

Canada 309
Pennsylvania 308

Tin.

Australia 356
California 117
Missouri..... 117

Miscellaneous.

British Columbia..... 117
California 117, 148
China..... 148
Maryland 58
Michigan 148
Pennsylvania 58
Virginia 117

Market Reviews and Reports.

Metals—New York Market..6, 22, 38, 86, 102, 118, 134, 150, 166, 182, 198, 214, 230, 246, 262, 278, 294, 310, 326, 342, 358, 374, 390
London Market...6, 22, 38, 54, 70, 86, 102, 118, 134, 150, 166, 182, 198, 214, 230, 246, 262, 278, 294, 310, 326, 342, 358, 374, 390

Coal Trade....6, 22, 38, 54, 70, 86, 102, 118, 134, 150, 166, 182, 198, 214, 230, 246, 262, 278, 294, 310, 326, 342, 358, 374, 390
Iron Trade....6, 22, 38, 54, 70, 86, 102, 118, 134, 150, 166, 182, 198, 214, 230, 246, 262, 278, 294, 310, 326, 342, 358, 374, 390
Mining Stocks....6, 22, 38, 54, 70, 86, 102, 118, 134, 150, 166, 182, 198, 214, 230, 246, 262, 278, 294, 310, 326, 342, 358, 374, 390
Boston Market...7, 23, 39, 55, 71, 87, 185, 151, 183, 199, 231
San Francisco Market...7, 23, 39, 55, 71, 87, 103, 118, 135, 151, 167, 183, 199, 215, 246, 263, 279, 295, 312, 326, 343, 359, 375

Machinery, Etc., Engravings of

A
Alarm Gauge, Allyn's.... 289
Apparatus for Raising Water, Gruber's.... 161
B
Band Sawing Machine.... 337
Boring Machine, Improved Vertical.... 385
C
Concentrator, Krom's Dry Ore.. 225
Copying Press, R. Hoe & Co.... 209
Clocks, American.... 208
E
Elevated Railway and Pneumatic Dispatch.... 305
Engine, Loomis' Patent.... 145
Engine, Steam, Hawes & Hersey. 81
Engines, Trunk and Hoisting Machinery.... 1
Eyelet and Paper Fastener.... 240
F
Furnace, the Monitor.... 272
Hammer, Shaw & Justice, Dead Stroke.... 128
Hand-Power Machine, Hassenpflug's.... 193
Heating and Ventilating apparatus for Railroad Cars.... 304
Hoisting Apparatus, Safety.... 321
I
Improved Steam Stamp Mill.... 401
L
Lanterns, Magic.... 288
Lubricators, Automatic.... 33
M
Microscopes, Compound.... 113
Milling Machines.... 97
Mont Cenis Tunnel, Boring the.. 257
O
Oil Cups, Plan for Improving.... 192
Oilers, Improved.... 33
P
Papier Mache Utensils.... 241
Presses, Lever and Screw.... 17
Printing Machine, R. Hoe & Co.. 65
Pipes, Meerschaum.... 160
Propelling Apparatus, Improved. 399
Pump, Rotary.... 81
S
Safe, Burglar Proof.... 17
Scales, Weighing.... 49
Scales, Sampson.... 353
Steam Pump, Cameron's "Special".... 177
Stove, Cooking.... 273
Surfacing Machine, Woodworth. 209
Trunks, Improved Upright.... 176
V
Valve, Simon's Patent.... 289
Velocipede, Pickering's.... 273

PATENT CLAIMS.—5, 27, 43, 59, 75, 91, 107, 123, 171, 187, 234, 250, 266, 282, 298, 314, 362, 378, 386
SPECIAL SCIENTIFIC BREVITIES.—11, 27, 39, 59
ALL SORTS.—11, 27, 43, 59, 75, 107, 123, 135, 203, 219, 266, 362
ON DIT ABOUT MINERALS, ETC.—11, 27, 59, 107, 123, 183, 266, 362
PERSONALS....5, 59, 203

ADVERTISEMENTS.

ANALYTICAL AND CONSULTING CHEMISTS.
Adelberg & Raymond.... 15
Dussauce, Prof. H.... 15
Wurtz, Prof. Henry.... 15
Huepeden & Wolters.... 15
Storer, Jacob J., Metallurgical Processes, etc.... 15
I. Waltz.... 92

ASSAYERS.
Western & Company.... 14

BANKERS.
Fisk & Hatch.... 256
Duncan, Sherman & Co.... 14

BOILERS.
Root, John B., Safety Boiler.... 11

BRICK MACHINES.
Martin Brothers.... 14

BOOKS.
Western & Co.... 14
Wiley & Sons, John.... 235
Baird, H. C.... 203
Youngs, Son & Co., E.... 363
Wells, T. R.... 335

COAL DEALERS AND SHIPPERS
Parmalee Brothers.... 12
Crane & Fassitt.... 14
Heckscher, Bowns & Co.... 12
Day, Huddle & Co.... 12
Honey Brook Coal Co.... 12
Randolph Brothers.... 12
Audenried & Co., Lewis.... 12
Bonnell, Samuel, Jr.... 12
Packer, Healy & Co.... 12
Ashburton Coal Co.... 12
Caldwell, Gordon & Co.... 12
New Boston Coal Mining Co.... 12
Linderman, G. B. & Co.... 12
Coxe Bro's & Co.... 12
Westmoreland Coal Co.... 12
Despard Coal Co.... 12
Wilkesbarre Coal and Iron Co.... 12
White, Fowler & Snow.... 12
Attrill, Henry G.... 347
Newburgh Orrel Coal Co.... 303

FURNACES.
Fuel Saving Furnace Co.... 14
Herman Piestch.... 14

FUSE.
Uren, Dunstone & Blight, Safety Fuse.... 14
Bishop, Sam'l C., Electric Fuse.. 16

INSTRUCTION.
School of Mines, Columbia College 12
Massachusetts Institute of Technology.... 331
Sheffield Scientific School of Yale College.... 15
University of Michigan.... 409
T. P. Pemberton, Mechanical Drawing.... 11
School of Mining in Practical Geology, Harvard University.... 11

IRON DEALERS.
Reynolds, Barber & Co.... 12

MACHINERY.
Hewes & Phillips.... 12
New York Steam Engine Co.... 15
Merrick & Sons.... 332
Albertson & Douglass Machine Company.... 12
Pioneer Iron Works.... 14
Andrews, W. D. & Co.... 12
Todd & Rafferty.... 12
Atlantic Steam Engine Works.... 13
Watson Manufacturing Co.... 12
Polley, Frank B. & Co.... 13
Hewes & Phillips' Iron Works.... 12
Novelty Iron Works.... 12
Mays & Bliss'.... 11
Hampson & Copeland.... 27
Kellog & Loomis.... 155
Justice, P. S.... 160
Werner, J. T.... 128
Hassenpflug, Brothers.... 203
Robertson & Co., John.... 286

MINING MACHINERY.
Becker & Son.... 16
New York Steam Engine Company Stamp-Mills.... 14
Smith & Sayre, Manufacturing Company.... 14
Morey & Sperry, Stamp-Mills.... 14
Otis Bro's & Co., Hoisting Machinery.... 13
Southard, Hobson & Co., Stone-Drilling Machine.... 16
Windsor Manufacturing Company Stone Channeling Machine.. 13
Blake Brothers, Stone Breaker... 13
Wilson's Steam Stamp-Mill Co... 14
Campbell, Whittier & Co.... 12
John F. Trow, Diamond Drill... 48
Krom, Stephen R., Concentrator. 240

MINING ENGINEERS AND METALLURGISTS.
Rothwell, R. P.... 15
Western & Company.... 14
Adelberg & Raymond.... 15
Maynard, Geo. W.... 15
Coghlan, David.... 15
Keyes, W. S.... 59
Gabb, William M.... 14
Lyman, Benjamin Smith.... 14
Schenck, Charles.... 15

MACHINISTS' SUPPLIES, ETC.
Geoghegan, Stephen J. & Co.... 13
New York Belting & Packing Co. 11
Winans, H. N., Incrustation Powders.... 13
Manvel & Lindsay, Patent Screw Wrench.... 11
Clinton Iron Foundry.... 12
M. Bottcher, Improved Gauge.. 14
Pond, Lucius W.... 11
Waltons & Leonard.... 13
Volcanic Oil and Coal Co., Natural Lubricating Oils.... 16
Bullard & Parsons, Upright Drills 13
McNab & Harlin, Brass Cocks.... 13
Kreisch, B. Fire Brick.... 13
Olmsted's Improved Oiler.... 43
Nicholson File Company.... 125
Union Vice Company, Vices.... 187
Lindsay, Wolton & Co.... 234
Allyn & Co., F. T., Alarm Gauge. 282

MISCELLANEOUS ADVERTISEMENTS.
Union Pacific Railway Co. Bonds 256
Mannar & Co., Pianos.... 13
Wheeler & Wilson Sewing Machine Co.... 16
Fairbanks & Co., Scales.... 16
Edward Sears, Wood Engraving. 14
Raynor, H. M., Platinum Apparatus.... 11
Anthony & Co., E. & H. T. Photographic Materials, etc.... 13
Ten Eyck Axe Manufacturing Co. 14
Evans & Gould, Book Binders and Printers.... 14
Collamore & Co., Cutlery, etc.... 16
Lovell & Costling, Mining Age'cy 14
Scovill Manufacturing Co., Plated Ware and Photograph Materials.... 13
Ives, Julius & Co., Lamps & Oils. 13
Holmes, E., Burglar Alarm Telegraph.... 14
Howard & Co., Waltham Watches 304
Washburn, W. L.... 16
Meeker, M. E., Engravings.... 13
Gruber, John P., Pumps and Scales.... 13
Desirable First Class Investment. 11
Marvin & Co., Safes.... 48
Empire Sewing Machine Co.... 92
Fountain Washer and Boiler.... 92
Ward & Co., J., Mangles, Wringers, etc.... 92
Benjamin, E., Chemical Apparatus 80
Feuchtwanger, Lewis, Iron Mine for Sale.... 80
Feuchtwanger, L. & S. W., Stevens' Flux.... 80
Wright, W. C. & Co., Ink.... 139
Oakley & Keating, Nonpareil Washing Machine.... 139
Worthington, H. R., Water Meter.... 155
American Institute Lectures ... 382
Bush & Gant, House-furnishing Goods.... 11
Kaldenberg & Sons, Pipes.... 155
White, Geo. E., Guano.... 143
McAllister, T. H., Instruments.. 144
Upright Trunk Co.... 171
McNamara, Wm. F., Patents.... 171
Marathon Silver Mining Co.... 219
American Photo-Lithographic Co 276
Hannan & Snow.... 238
Papier Mache Utensils.... 240
Gilbert Clock Co.... 224
Vapor Stove Co.... 252
Whelpley & Storer, Pulverized Fuel.... 15
Arctic Lamp.... 269
Developing Clubs, Washburne's. 272
National Stove Works.... 383
Pickering & Davis, Velocipedes.. 283
Torrey & Co. E. S. & J., Weather Strips.... 315
Guest, J. H., Fire Alarms.... 383
Sampson Scale Co.... 365
Roberts & Co., E. E., Financial Agency.... 367
Dickinson, John, Carbon.... 368
Excelsior Manufacturing Co., Skates.... 364
Heath & Co., E. A., Lamps.... 384
Stevens & Co., Rules.... 94
Velocipedes, the Monod Pattern.
Keep's Patent Steam Top....

NEWSPAPERS.
AMERICAN JOURNAL OF MINING.. 14
EL CORREO HISPANO-AMERICANO 187
"The New York Express,".... 14
"The Church Union,".... 14
"The Protestant Churchman,".... 14
"Scottish American Journal,".... 283
"Rural New Yorker,".... 331
"Manufacturer and Builder,".... 336
"The Household,".... 347
"American Phrenological Journal.... 335
Van Nostrand's Magazine....

POWDER.
Neumeyer & Niese.... 13

SAWS.
American Saw Company.... 11
Hoe, R. & Co., Saws and Printing Presses.... 16

SLATE.
Galt, John.... 12
Hudson River Slate Company... 12
Roofing Slate Quarry.... 12

STEAM ENGINES.
Hoadley, J. C. & Co.... 13
Devereaux, A. T. & Co., "The Buddick".... 12
Campbell, Whittier & Co.... 12
South Brooklyn Steam Engine Works.... 12
Atlantic Steam Engine Works... 13
W. D Andrews & Brother.... 14
Brooks & Bacon.... 16
Wood & Mann.... 304

STEAM PUMPS.
Campbell, Hardick Bros.... 13
Clayton, James.... 13
Guild & Garrison.... 13
Worthington, H. R.... 13
Cameron, A. S. & Co.... 13
Cole, J. W., the Positive Steam.. 13
Woodward Steam Pump Manufacturing Company.... 13
Brinton & Henderson.... 13
Knowles' Patent.... 27

WIRE ROPE.
Roebling, John A.... 11
Mason, John W. & Co.... 14

Special Notices.

Manhattan Co-operative Relief Association.... 234
Marathon Silver Mining Co.... 234
Wheeler & Wilson..250, 266, 330, 362
Fisk & Hatch...250, 266, 282, 298, 314, 330, 346, 362, 378, 391
Baird, Henry Carey.... 266
Morey & Sperry.... 266, 314
West Fairmont Gas Coal.... 346
Howard & Co.... 346
Coal Dealers, Removal of.... 362
Newburgh Orrel Coal.... 362
J. C. Hoadley.... 362
Lindsay, Walton & Co.... 378
Burners for Kerosene Lamps.... 378
Hayes, J. N.... 378
Wrench, Lindsay's Patent Screw. 395